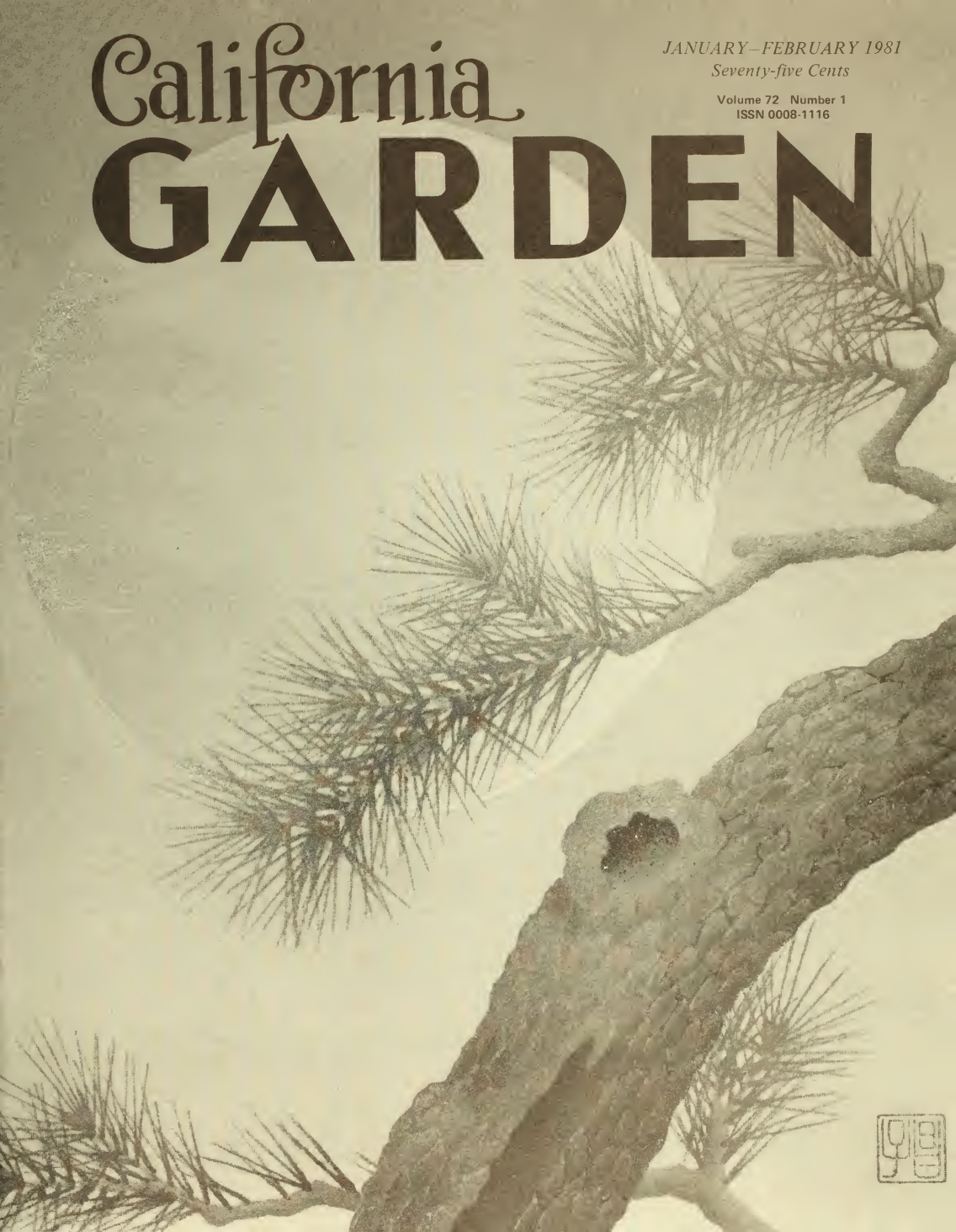
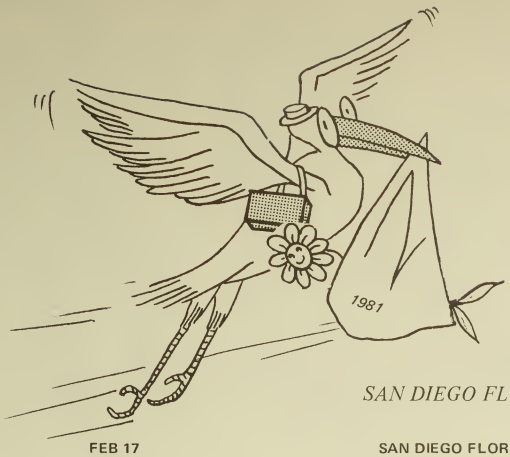
California GARDEN

JANUARY–FEBRUARY 1981
Seventy-five Cents
Volume 72 Number 1
ISSN 0008-1116





COMING EVENTS

SAN DIEGO FLORAL ASSOCIATION

FEB 17

SAN DIEGO FLORAL ASSOCIATION MEETING
Tuesday—7:30 p.m. Casa del Prado, Majorca Room, Balboa Park, San Diego
Program: *Colors in the Desert Plants* by Dorothy Loa McFadden
Slides of famous gardens in California, Arizona, and Monte Carlo

OTHER EVENTS

JAN 10, 11

SAN DIEGO ROSE SOCIETY
Rose Pruning Demonstration, Parker Rose Garden, Balboa Park, San Diego
Saturday: 10:00 a.m. to 2:30 p.m. Sunday: 10:00 a.m. to 2:00 p.m. FREE

JAN 17, 18

SAN DIEGO CAMELLIA SOCIETY MINI SHOW
Casa del Prado, Majorca Room, Balboa Park, San Diego
Saturday: 11:00 a.m. to 5:00 p.m. Sunday: 10:00 a.m. to 5:00 p.m. FREE

FEB 7, 8

SAN DIEGO CAMELLIA SOCIETY 34TH ANNUAL SPRING SHOW
Conference Building, Balboa Park, San Diego
Sat: 1:00 to 5:00 p.m. Sun: 10:00 a.m. to 5:00 p.m. FREE THIS YEAR!

FEB 7, 8

SAN DIEGO ORCHID SOCIETY SPRING MINI SHOW
Majorca Room, Casa del Prado, Balboa Park, San Diego
Saturday: 12 Noon to 5:00 p.m. Sunday: 10:00 a.m. to 5:00 p.m. FREE

FEB 28, MAR 1

OHARA CHAPTER OF SAN DIEGO FIFTH SHOW
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California
GARDEN

Library of Congress No. ISSN 0008-1116

Published Since 1909
by
SAN DIEGO FLORAL ASSOCIATION
and
GARDEN CENTER
Casa del Prado, Balboa Park, San Diego, CA 92101
Mon. through Fri. 10:00 to 3:00
232-5762

JANUARY—FEBRUARY 1981

VOLUMBE 72 NUMBER 1

FRONT COVER *Japanese silk painting by Masako Bailey. The artist is a teacher of silk painting both in Japan and the United States.*

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© CALIFORNIA GARDEN (USPS 084-020) is a non-profit publication of the San Diego Floral Association, a non-profit horticultural organization. The magazine is published bi-monthly for $4.00 per year; $7.50 for two years, by San Diego Floral Association, Casa del Prado, Balboa Park, San Diego, California 92101. Manuscripts are invited. Manuscripts and illustrations submitted will be handled carefully, but we cannot assume responsibility for their safety. All opinion expressed are those of the author and do not necessarily reflect the views of the editors of the San Diego Floral Association. "Hortus Third" is the authority for all botanical names used in this magazine. Entered as second-class matter, December 8, 1910, at the Post Office of San Diego, California, under the Act of March 3, 1879.

POSTMASTER: SEND FORM 3579 ADDRESS CHANGES TO:
CALIFORNIA GARDEN,CASA DEL PRADO,BALBOA PARK,SAN DIEGO,CA 92101

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Pink Powderpuff

WINTER FLOWER COLOR

Subtropical Trees, Shrubs, and Vines

by *Steve Brigham*

Photos by *Bill Gunther*

WINTER. For much of the country, it brings a cold, snowy landscape and the beauty of leafless trees against the sky. Along the coast of southern California, however, it sometimes seems that winter has forgotten us altogether; gardens full of color herald the return of spring–Christmas lights illuminate not snow but flowers!

Here at Quail Botanical Gardens in Encinitas

I can finally enjoy the winter flower display of subtropical trees and shrubs that I have been experimenting with farther north. In Santa Cruz, our occasional early-December frost wreaks havoc in the subtropical garden; in San Diego, that frost rarely visits so early, and sometimes not at all.

Of the many good subtropicals for winter color that we grow at Quail Gardens, I here present ten perhaps less-than-obvious choices for the small home garden. Although all have proved successful (in most years) farther north, they are much more at home here in San Diego County, and certainly should be used more often. For more information on these plants, I recommend the book *Color for the Landscape*, edited by Mildred Mathias, as an outstanding reference on subtropical plants for southern California gardens. If the text does not convince you to grow every plant mentioned in the book, the beautiful color pictures surely will!

• *Bauhinia* (x?) *blakeana*, Hong Kong Orchid Tree

This beautiful small tree produces huge numbers of large rosy-purple flowers year round in our climate, but most heavily in the fall and winter. One of the showiest trees for our climate in size, it is perfectly suited to the small home garden. A fine specimen may be seen at Quail Botanical Gardens.

• *Tecoma stans*, Yellowbells

This shrubby "trumpet tree" is one of the showiest plants native to the United States, and it does particularly well in our area, where it can be trained as a small tree. Clusters of yellow flowers are heavily produced even on very young plants.

• *Montanoa arborescens*, Daisy Tree

Our garden marguerites pale by comparison to this 8- to 12-foot daisy tree covered with white flowers at Christmastime. A native of Mexico, it definitely should be more widely grown.

• *Calliandra haematocephala*, Pink Powderpuff

A native of Bolivia, this large shrub is planted in some countries as a "good-luck" plant near the entrance to the house. Raspberry-like buds open to large pink puffs which cover the plant all winter. There is also a handsome white variety.

• *Ruellia macrantha*, Christmas Pride

This 5-foot Brazilian shrub bears large rosy-purple flowers in great profusion, and seems to withstand a mild frost fairly well. This member of the acanthus family seems also a good candidate for a showy informal hedge, but unfortunately is not widely available in nurseries.

Yellowbells

• *Justicia aurea*, Yellow Plume Flower

This winter-blooming cousin to the more familiar *J. carnea* (pink flowers) can reach 10 feet, and bears numerous 12-inch yellow flower spikes. A good choice for a tropical-looking background plant. There is also a more compact form grown at the University of California at Los Angeles Botanical Gardens.

• *Salvia gesneraeflora* 'Tequila', Scarlet Sage

Unpruned, this large Mexican sage can reach 10 feet, although in the garden it may be controlled at half that height. Bold spikes of scarlet flowers with black calyxes make a fine addition to a bouquet, and the plant will tolerate much or little water, sun or shade. Introduced by the Huntington Botanical

Hong Kong Orchid Tree Flower

Gardens, it is still a comparative unknown in gardens.

• *Senecio confusus*, Mexican Flame Vine

Brilliant orange flowers cover this daisy vine during the summer and fall, but at Quail Gardens it is in full bloom again in December, and makes a good Christmas show. Best in coastal gardens with no frost, it appreciates some shade.

• *Pyrostegia venusta*, Brazilian Flame Vine

In contrast to the senecio, this vine is best for inland areas and thrives in the heat. Beautiful on tile roofs, it features clusters of brilliant orange flowers at Christmas and throughout the winter.

• *Solandra longiflora*, Copa-de-Leche and *S. maxima*, Copa-de-Oro

These huge-flowered members of the nightshade family are burly vines that are quite drought-tolerant when mature. Foot-long flowers are produced heavily in November and December in the case of *S. longiflora* and throughout the winter in the more commonly seen *S. maxima*. They can be stunning trained against a wall or on a fence. □

The newest ranger at Quail Botanical Gardens is *Steve Brigham*, a specialist in rare subtropical plants and drought tolerant California natives.

Editor's Note: Specimens of Hong Kong Orchid Tree, Yellowbells, Pink Powderpuff, Mexican Flame Vine, and Brazilian Flame Vine may be seen also in the San Diego Zoological Gardens.

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Food for Body and Soul

by *Kathryn Adams*

Photo by *BILL GUNTHER*

Drawing by *ROBERT L. FRANCIS*

Left: *Asparagus meyeri*

YOUR FAVORITES MAY be geraniums, roses, foliage plants or desert cacti, but chances are, somewhere in your assortment of plants can be found an *Asparagus meyeri, A. sprengeri* or *A. setaceus (A. plumosus),* just plain asparagus fern. It may be a small plant in a 3-inch pot or a large specimen in a tub. Graceful and airy, this group of long-lived liliaceous plants is easy to grow and complements any setting.

While watering a mature *A. retrofractus* one morning I noticed two young fronds poking their tender little heads above the soil. "They look just like succulent little asparagus stalks!" Eureka!! Can *Asparagus officinalis* be grown in tubs too? Hmmm! And why not!

One- or two-year old roots are available at the local nurseries early each spring, the proper planting time. Since asparagus must be four years old before it is ready for harvesting, you can expedite your crop by purchasing two-year old roots. Prepare a fertile soil mix of sandy loam, well rotted manure, a little builder's sand, and some bonemeal and iron. Place a layer of pebbles on the bottom of a 14-inch tub for drainage. Fill the tub two-thirds full of the soil mix. Shake down well. Now you are ready to plant your

roots.

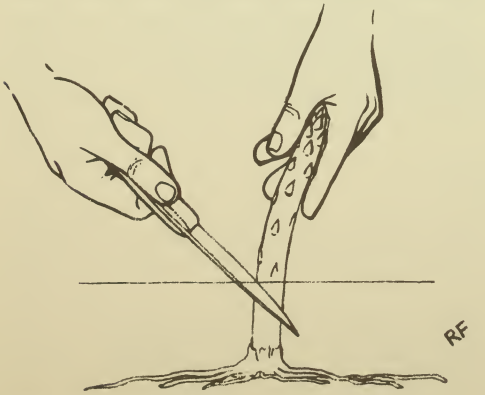
The root clump-resembling an anemic octopus, should be spread out flat, like the palm of your hand, with the pointed crown upward. The stalks appear from this crown. Space the roots evenly in the tub and cover with 4 inches of soil mix. Place the tub in a sunny location, and drench well to settle the soil and remove air pockets. From then on, keep the soil moist, as excessive drying out can stunt or set back growth of the new shoots that will appear soon.

This is the beginning of your patio asparagus patch! But do not prepare your Hollandaise sauce yet. These young plants must be allowed to grow and store energy for two seasons. The shoots will mature into "fern bushes" which should be staked to prevent damage or breaking of the main stem; also the appearance is improved if plants are kept erect. Feed with fish emulsion semi-monthly during the growing period.

In late fall, the bushes turn yellow and should be cut down to the soil line. A top dressing of well rotted manure and a little bonemeal should be given at this time. After a short rest, new shoots will soon appear, as another growing season begins, with vigorous growth made until fall, when the yellow branches are cut down once again.

The third spring, when the growth appears, the asparagus shoots should be thick—about the size of your thumb. Now prepare your Hollandaise and get ready for a gourmet delight! Stalks are ready to cut when they are firm and full but before they begin expanding. Using a long, thin, sharp kitchen knife, cut on a slant, several inches beneath the soil line, taking care not to damage root crowns. Continue cutting all shoots until mid-June, when shoots must be permitted to mature into fern bushes to store up energy for the following seasons's crop.

To further beautify your planter, sow dwarf marigolds, violas, pansies or other small annuals, around the perimeter of the tub, encircling the asparagus. This completes a planting with food for body and soul! □



The author is a dedicated gardener who grows fine specimens of many plants in a limited space. Her miniature garden has the admiration and no doubt a bit of envy of her neighbors.

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Agonis Flexuosa

by *Helen Chamlee*

Peppermint Tree — Australian Willow Myrtle

"ITS TRUNK IS too thick and its head is too dense, I don't like it." I am quoting myself here, on my first considered look at an *Agonis flexuosa*, or rather a row of them along a street in San Diego.

Now for another opinion.

"Australian willow myrtle is a low-branching, wide-spreading, picturesque tree with pendulous twigs and foliage and a multiple trunk covered with warm reddish-brown, deeply furrowed bark. The fragrant, eucalyptus-like leaves are bright green, but the coppery red of the young leaves and twigs seems to suffuse the whole tree with a rosy flush. . .grows with an individual grace which adds character to any garden position it occupies. It will tolerate extreme drought but will not stand extreme cold, and seems to prefer cool, mild, coastal areas." (*)

The discrepancy of opinion stems not from the habit of the tree itself, but from man's treatment of it. Frances Howard was describing the agonis as it looks when allowed to assume its natural habit. I was looking at specimens whose structure and shape had been dictated by the exigencies of a narrow parking strip.

Drawn by the rosy flush, and being a push-over for trees or shrubs with fragrant foliage, I decided to grow one that would look like the sketch in the book. I began by setting out a small plant from a gallon can and then, when basal shoots appeared, rubbing off all but two of them. Those two along with the original stem have formed the framework for my "low-branching, wide-spreading, picturesque tree." It has taken little effort on my part—the coppery new leaves and the warm brown furrowed bark have appeared in due time and take care of themselves. I find it charming, and its minty fragrance delights me every time I go to my garage for the car. The delicate zigzags of its slender twigs and the ancient appearance of its shaggy bark bear close inspection, and there are tiny white flowers to look forward to in midsummer.

As a street tree, though somewhat lacking in grace, agonis is useful and durable. It grows so slowly and stops so short that decades must pass before it will require the attention of those power line people who go around crew-cutting trees. It doesn't blow down in a storm, its branches do not split or break, and when automobiles stray into that thick, solid trunk they don't hurt anything but themselves.

About the name: the people who know it and call it anything at all generally say a-goe-nis, although the names willow-myrtle and peppermint tree are listed in various books. □

PHOTO: Drooping branchlets, willowlike leaves. . . *Agonis flexuosa* near Spanish Village in Balboa Park—San Diego, California

(*) Maino, Evelyn and Howard, Frances. Ornamental Trees. University of California Press, 1955

Left: *Camellia chrysantha*
At last the babled and elusive yellow camellia is available to the Western world!

Below: *Camellia japonica*

CAMELLIAS

Today and Tomorrow

by *E. C. (Gene) Snooks*

(Photo courtesy *The Camellia Review*)

ASK ANY GARDENER to describe a camellia and you are sure to learn that it is a broadleaved evergreen shrub which blooms in the winter months with large flowers of various sizes and forms, ranging in color from white to deepest red with some striped or blotched. You might also learn that for all of their beauty, they lack fragrance.

All of the above statements are true, but the surface has hardly been scratched. The vast number of cultivars available today provides us with not only shades and combinations, but also varied growth and leaf forms. They vary also in adaptability to sun and shade, from those which must be grown in mostly shade to those that will thrive in full sun. These features, coupled with the variety of growth patterns from narrow columnar to prostrate, natural espaliers, and even some which weep, make them, indeed, most versatile.

The future is even more exciting, for these already sterling qualities are being further improved via hybridization. In the past, nearly all new cultivars were either chance seedlings or natural mutations. Both of these processes are limited in scope and direction. With the "secrets" of hybridization now widely known, a new dimension has been added to

the hobby and many amateur growers now perform controlled crosses. Most new cultivars now are introduced by the hobbyist, rather than by the few professionals in the field. With the importation and dissemination of several new species to work with, and even some intergeneric hybridization, new horizons have been opened.

Perhaps the most exciting prospect is due to the introduction earlier this year of the species *Camellia chrysantha* from China. This species bears small 1- to 2-inch blooms of a rich yellow. At last the fabled and elusive yellow camellia is available to the Western world! The importance of this species to the future of camellia popularity can hardly be estimated at this time, for through the introduction of yellow genes a whole range of new colors and shades is now becoming possible, including peach, apricot, and orange. It will be some time before results will be seen and still longer before the new colors are available on the market, but rest assured—they are on their way. As this species becomes more readily available to the many hobbyist hybridizers, we most certainly will see a wave of new and exciting introductions.

Fragrance, too, is just around the corner. Several cultivars already introduced bear some fragrance and two species, *C. lutchuensis* and *C. kissi* are being incorporated into many hybridization programs in attempts to capture their strong fragrant qualities. But why wait? *C. lutchuensis* is readily available and its delicate wire-like stems with inch-long leaves and cascading growth pattern make it a natural for hanging baskets. All winter long the plant covers itself with very small white blooms at nearly every leaf axis, blooms which will delight you with their sweet fragrance. *C. kissi* has a slightly more upright growth habit, small white blooms borne in profusion, and a different but equally sweet scent.

The picotee flower pattern has long been admired by camellia growers as well as fanciers of other plants. Until recently the only camellia cultivars of this type were the result of mutations and as such were not suitable for continuing the style by hybridization. The most popular cultivars of this type include 'Betty Sheffield Supreme' and 'Margaret Davis', both of them with a red border on lighter colored petals. The recent introduction of the seedling from Japan, 'Tama-No-Ura', with its small-to-medium red blooms with a wide white edge gives hope of creating a whole new race of picotee blooms. Watch for them.

At the present time the camellia belt is mostly limited to the southeastern states and the Pacific coastline. But this too is starting to change. Dr. W. L. Ackerman of the United States National Arboretum has developed and introduced several new hybrids which have withstood the recent severe winters in the Washington, D.C. area. One, in particular, is of interest, for it bears large white blooms similar to many of our most popular cultivars; but contrary to the concept of tenderness usually associated with camellias, it has withstood below-zero weather without any apparent damage. If you want to give an unusual gift to a gardener friend in a somewhat cooler clime than southern California, be on the look-out for 'Frost Queen.'

On the other hand, southern Florida, Hawaii and similar sub-tropical areas have also been considered outside of the "Camellia Belt" due to their consistently high temperatures and high light levels. Once again the hybridizer is coming to the rescue with the introduction of hybrids from some of the more tropical species such as *C. kissi, C. hongkongensis* and *C. crapnelliana*. The latter is most interesting because of its rust-red stems and branches.

So, what's new in camellias? New colors encompassing yellow and various pastel shades, fragrance in variety, hardiness and heat resistance, new color combinations and much more. Count on camellias to add color and spice to your garden, both today and tomorrow. □

Mr. Snooks is president of the *San Diego Camellia Society* and an avid camellia grower.

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Unicorn Plants

by *Wayne P. Armstrong*

PLANTS HAVE BEEN named after just about every conceivable animal, but one of the most fascinating groups of New World plants is named after a mythical horselike animal with a single horn growing from the center of its forehead. They belong to the Martynia Family (Martyniaceae), a small family mostly of warm subtropical and desert regions of North America. Members of this family typically produce long, horn-like fruits or capsules which later split open at one end into two curved claws. In some parts of the southwest, unicorn plants are more commonly known as "devil's claws" or, more appropriately, "elephant tusks", which describes the characteristic pods, especially when they have split open. As a group the unicorn plants are relatively little-known, and yet they produce some of the most beautiful flowers and bizarre seed pods in the plant kingdom.

In general, most of our southwestern unicorn plants are robust, sprawling plants with rounded leaves and very glandular-pubescent foliage. Typically they grow and flower during the hottest months of the year in sweltering interior valleys and desert washes. Presumably the glandular covering provides some insulation from the intense sunlight and hot dry winds of late summer. The clammy, sticky stems, leaves, and flowers emit a somewhat disagreeable odor that could be described as urinous, particularly *Ibicella* and *Proboscidea louisianica*. In fact, some garden books recommend planting them well away from the regular flower garden to allow them to spread with their customary vigor and to keep their unpleasant scent from overwhelming more delicately perfumed plants. Superficially they look like sprawling pumpkin or squash vines with erect, dense racemes of yellow or

Stages in the formation of peculiar "devil's claw" or dried capsule of *Proboscidea parviflora*: A—Mature, green fruit; B—Fleshy, outer halves of fruit separated to show dark, hard endocarp; C—Hard endocarp split open into characteristic curved horns or claws.

pink bignonia-like blossoms. Most of our species are annuals, and for their size have relatively shallow root systems with a short, slender taproot. Only one species, *Proboscidea althaeifolia*, is a perennial, resprouting each summer from a large, fleshy taproot that may be 10 cm. (4 in.) in diameter and extend up to 30 cm (12 in.) or more below the surface. Like other deep-rooted desert perennial herbs, such as coyote melon (*Cucurbita*) and jimsonweed (*Datura*), it is drought tolerant. One is always surprised to walk up a seemingly dry and barren desert riverbed in the blistering heat of summer and discover a veritable garden of unicorn plants in full bloom, long after most other wildflowers have flowered and gone to seed.

When they hang in clusters on the branches, the fleshy green fruits of unicorn plants look very much like bean pods. Like bean pods and okra, the young fleshy fruits of some species are cooked and eaten by several tribes of southwest Indians. In some parts of the United States they are grown and pickled like cucumbers, either alone or mixed with other vegetables. When the fruits mature they begin to dry out and the inner layer (endocarp) becomes very woody and hard. The outer fleshy layer splits into two halves that usually shrivel and fall off. The long, tapering end of the endocarp gradually splits into two curved horns that are very sharp. The dried capsules are well-suited for hitchhicking because the claws readily attach to shoes, clothing, fur, and especially the fetlocks of burros and sheep. In some areas of the southwest they are a nuisance to sheep ranchers because they get entangled in the fleece. In his fascinating book, *Plants and Planet* (1974), Anthony Huxley (son of Julian Huxley) described the unicorn capsules as "hookers." On more than one occasion I

have had the painful experience of removing the sharp "hooks" from my hands while working in the garden.

The only native yellow-flowered species in the Colorado Desert of California is *Proboscidea althaeifolia*. It also grows in Arizona and Baja California along with another very similar species, *P. arenaria*. Mature plants of both species can be distinguished by their perennial or annual root system if you have the heart to dig them up. They both have large, brilliant yellow corollas with flecks of reddish-brown and streaks of deep yellow. They also have smaller leaves than other southwest species, seldom exceeding 3 inches in width. In general shape they resemble leaves of the hollyhock, *Althaea*, hence the derivation of *althaeifolia* (spelled *altheaefolia* in some references). Another yellow-flowered species, *Ibicella lutea*, is sparingly naturalized in the Sacramento and San Joaquin Valleys of California, at the Rancho Santa Ana Botanic Garden in Claremont, California, and recently in my garden in Escondido. It is native and cultivated for food in several countries of South America, from Brazil to Argentina. The dried capsules of this species are unique among unicorn plants because the body is covered with short, prickly spines (echinate). This makes it a doubly effective hitchhicker and surely it must be the "king" of Anthony Huxley's "hookers."

The other southwestern unicorn plants are annuals with cream, pink, or red-purple flowers, often dotted or blotched with red-purple and streaked with yellow. *Martynia annua* is native to tropical America and is naturalized in tropical regions of India and the Malay Archipelago. Its dried capsules are much smaller than other unicorn plants, with minature claws only 1/3 inch long. A sun-bleached capsule, with short, fang-like claws, superficially resembles the upper jaw and skull of a pit viper. According to

Showy flower of *Proboscidea althaeifolia*. The corolla is brilliant yellow with flecks of reddish-brown and streaks of deep yellow. Note the dense, glandular hairs covering the bud and pedicels.

Hortus Third the plants may grow to be 6 to 10 feet tall—considerably taller than most other members of the family.

The only native pink-flowered unicorn plant in the southwestern United States is *Proboscidea parviflora*. It has smaller flowers than most species, as the specific epithet suggests. The upper corolla lobes are often red-purple and the throat is streaked with yellow; however, flower color and size are variable and there are apparently several Indian cultivars that have been grown for many generations. I have grown seeds from Havasu Canyon, Arizona (Coconino County) and Johnson Canyon, California (Inyo County) that show considerable variation. The capsules of *P. parviflora* may reach 12 inches in length, with a body 4 inches long and enormous claws up to 9 inches or longer. This species is widespread in Arizona, particularly along the Gila River where it grows wild on the banks, along fences, or in abandoned fields where there is plenty of moisture. It is cultivated as a summer field crop on several Indian reservations, and may occasionally be encountered as a wayside weed. It also extends south into Baja California, Sonora and Sinaloa, Mexico, and eastward into Texas. In California it is very rare and is seldom seen. There are two additional species of *Proboscidea* reported from Mexico with pink or red-purple corollas similar to *P. parviflora*. *P. gracillima* is endemic to central Baja California and *P. sinaloensis* is native to arroyos and valleys from central Sonora to Sinaloa.

The only other pink-flowered species in California is *P. louisianica*, a robust, large-flowered annual from the southeastern United States, now naturalized in parts of the Central Valley. It was introduced into the Palm Springs area after 1930 and has been reported in San Diego County on Otay Mesa and recently on the north side of Batiquitos Lagoon. In older references it is sometimes listed as *Martynia louisianica, M. proboscidea,* and *Proboscidea jussieui*. It is very hardy and is a prolific seeder, and is becoming somewhat of a pest in my garden. It is sometimes cultivated for its very showy flowers which are larger and generally more numerous than *P. parviflora*. The leaves are generally more rounded (orbicular) and broader than *P. parviflora*, and may be 11 inches across on vigorous plants. Seed mixtures often produce individuals with several color variations, from cream to vivid red-purple. The flowers are fragrant and are very attractive to bees. The two-

lipped thigmotropic stigma closes with the slightest touch, presumably capturing pollen as in several related wildflowers such as *Mimulus*. As in *P. parviflora*, the pods are quite large and one plant may produce dozens of the curious hooked capsules.

Native unicorn plants have a very scattered and local distribution in desert regions of California The perennial species, *P. althaeifolia*, occurs occasionally in sandy areas of San Diego, Imperial, and Riverside Counties, but is not commonly seen because few people botanize these areas in the scorching heat of late summer. The pink-flowered annual, *P. parviflora*, has been reported from several widely separated desert areas of Inyo County, including Johnson Canyon west of Death Valley, just below mouth of Hunter Canyon in Saline Valley, and historic Fort Independence in Owens Valley. In these extremely isolated locations it appears to have been introduced by local Paiute and Shoshone Indians, and perhaps this species is not truly native to California.

Certainly one of the most interesting locations for *P. parviflora* in California is Johnson Canyon, a steep canyon on the east side of the Panamint Range that drains into Death Valley. A Shoshone Indian by the name of Hungry Bill, with a reported enormous appetite, settled in Johnson Canyon during the late 1800's. A brother of Hungry Bill visited Fort Mojave, Arizona and found the Indians there making black designs in their baskets from unicorn plant pods. He planted seeds in Johnson Canyon where they became naturalized and still flourish to this day. Since remote

Foliage and inflorescence of *Ibicella lutea*. The large, slimy leaves have a strong, disagreeable order.

canyons in Death Valley are treacherous during the summer months, I collected seeds earlier in the year and planted them in my garden. It is rather exciting to see such plants grow and bloom in your garden, especially when you realize they are progeny of an earlier collection made over a century ago.

Many native plants have been used extensively by southwest Indians, but one of the most amazing is this unicorn plant. By far the most widely used and highly prized species is the large-fruited, pink-flowered annual, *Proboscidea parviflora*. Like the famous rugs and blankets of Navajo Indians, the baskets of Papago

Indians are well-known for their durability, beauty, and intricate designs. The four basic colors in the baskets are white, black, green, and red. White is from sun-bleached dried yucca leaves (usually *Yucca elata*), while green is from unbleached dried yucca leaves. A red dye obtained from yucca roots is sometimes used to color the leaves. Narrow, fibrous strips of yucca leaves are tightly wound around slender bundles of beargrass (usually *Nolina microcarpa*) leaves. If you look very closely between the coils of yucca leaves you can see the bundles of beargrass leaves.

When dried the unicorn seed pods look as though they had been sprayed with flat black paint. These dried pods are soaked in water, then the long, curved claws are split lengthwise into two narrow strips. The pliable black strips (like leather shoelaces) are tightly coiled around bundles of beargrass leaves to produce the dark patterns. Since the black color is part of the actual pod and not a dye, it will last indefinitely and makes a striking contrast with the white yucca leaves. The closeness of weave and the elaborate designs obtained by alternating strands of white yucca leaves with strands of black unicorn plant claws are quite remarkable.

Other tribes of southwest Indians, such as the Pima, Havasupai, Apache, Yavapai, Chemehuevi, Hopi, Shoshone, and Paiute also utilize the claws of unicorn plants for black designs in their baskets. Depending upon the tribe and availability of plant materials, strips of stems from willow (*Salix*), cottonwood (*Populus*), rush (*Juncus*), or squaw bush (*Rhus trilobata*) are used in place of yucca leaves, and strips of stems from cattail (*Typha*), tule (*Scirpus*), or willow are used in place of beargrass leaves. In his fascinating book entitled *The Basket Weavers of Arizona* (1954), Bert Robinson describes a plausible origin for unicorn plants in Pima basketry: "In all probability, the first baskets made by the Pimas were woven entirely of willow or cottonwood, but the sharp sand around the cooking fire soon cut out the stitches on the surface exposed to the ground, especially if the basket was heavily laden. It is possible the ancient basket weaver, seeking something that would withstand more wear, found that the devil's claw, which fastened itself about her ankle as she walked through the fields, possessed the strength and toughness she was looking for." To this day, the center of the bottom of Pima baskets as well as the finished edge are commonly of unicorn plant.

Foliage and flower of *Proboscidea parviflora*. The leaf is similar in general outline and size to the ubiquitous cocklebur (*Xanthium*).

At least two species of unicorn plants, *P. louisianica* and *P. fragrans*, are cultivated as ornamentals and seeds are available from some supply companies. Seeds may be planted in well-spaced mounds or in rows, just as you would plant cucumbers or squash. You should plant the seeds in late spring when the soil is warm and there is no danger of frost. Soaking the seeds of *P. parviflora* in warm tap water appears to stimulate germination and increase the percentage of young seedlings. Seeds should be covered with about 1 inch of loose soil and kept moist until germination. Annual unicorn plants grow on a variety of soils in the wild, but appear to thrive in rich loam soil with regular weekly watering. *P. louisianica* reseeds itself and becomes naturalized readily, but does not pose any great threat to your garden until you step on one of the hooked claws barefooted!

With some clever imagination and a few items such as bird feathers, glue, and simulated eyeballs, unicorn pods can be converted into some of the strangest creatures you have ever seen. Sometimes you find them for sale in curio shops, painted like birds, or even wearing clothing. They also make an

Papago baskets and dried capsule of *Proboscidea parviflora*. The white patterns are from dried, sun-bleached yucca leaves. Narrow strips from the claws of the unicorn plant capsule are used for the striking black designs. The basketmaker's proud name often comes with each basket.

interesting mobile, clinging tenaciously to one another from the ceiling. Recently, I found an artificial sunflower from Mexico in which the ray flowers were made from a ring of *Martynia* capsules hooked around a central disc.

Unicorn plants represent one of the most interesting and unique plant families in North America. Although they are relatively little-known, they have been very important in the culture of several southwest Indian tribes. Whatever the reasons might be for growing them: as a dark fiber for coiled baskets; as a vegetable crop or substitute for cucumber pickles; as an art design for bizarre little animals; or just for their beautiful flowers and unusual seed pods; unicorn plants are guaranteed to be an excellent conversation piece in the home or garden of any plant lover.

Many of the author's articles on plants have appeared in scientific publications. Mr. Armstrong teaches in the Life Science Dept. at Palomar College, San Marcos, Calif.

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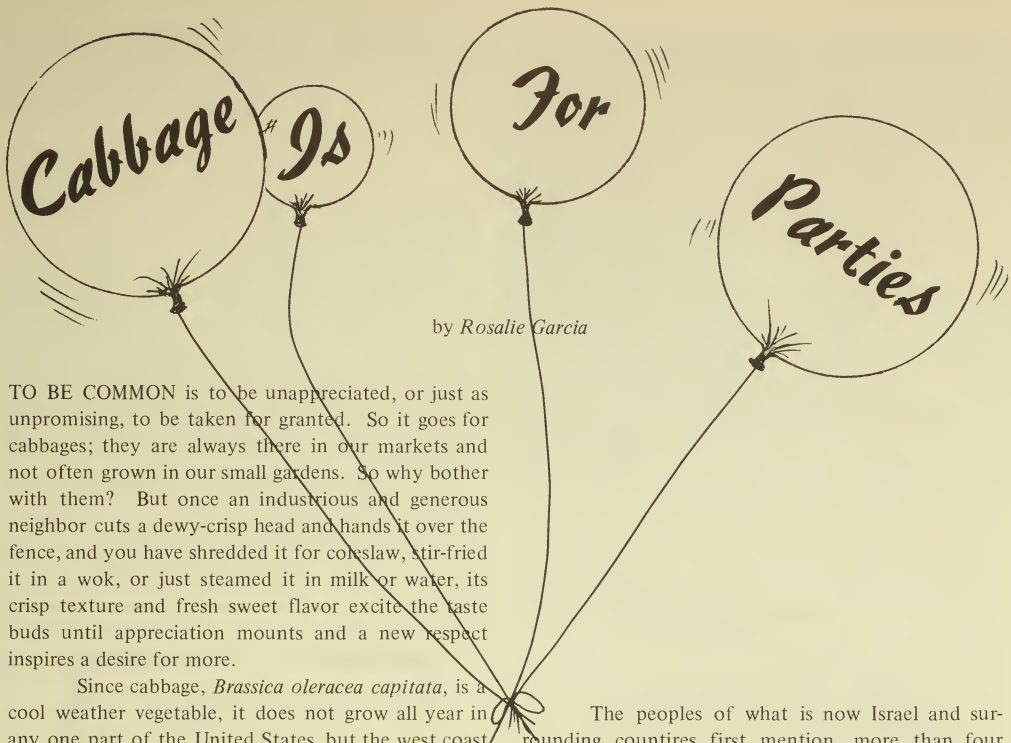

Cabbage Is For Parties

by *Rosalie Garcia*

TO BE COMMON is to be unappreciated, or just as unpromising, to be taken for granted. So it goes for cabbages; they are always there in our markets and not often grown in our small gardens. So why bother with them? But once an industrious and generous neighbor cuts a dewy-crisp head and hands it over the fence, and you have shredded it for coleslaw, stir-fried it in a wok, or just steamed it in milk or water, its crisp texture and fresh sweet flavor excite the taste buds until appreciation mounts and a new respect inspires a desire for more.

Since cabbage, *Brassica oleracea capitata*, is a cool weather vegetable, it does not grow all year in any one part of the United States, but the west coast has more areas of cool weather than most, so it is grown somewhere in all seasons. This makes it available in our markets all year. We have many brassicas, but the variety *capitata* that forms heads is the most widely known and easiest to grow. It forms heads in many shapes—flat, round, pointed, or oval—which the seed catalogs divide into early, midseason, and late fall. It takes from two to three months to form a head, depending on the variety, after the plant is set out.

Right now one may buy 3-inch plants in the nursery for setting out in rich loose loamy soil. They should be the early varieties now and should be so labeled. These should be heading in late March or early April. Midseason plants set out in April should be heading in June before the weather is hot. For fall and winter, set out late varieties in September and October, even November, depending on the unpredictable southern California weather. Remember that all the brassicas are cool weather plants, the collards, kale, cauliflower, broccoli, Brussels sprouts, kohlrabi, turnips, and mustards.

The peoples of what is now Israel and surrounding countires first mention, more than four thousand years ago, the leafy plants they found growing wild. These plants were the first known brassicas and may have been more like our collards or kale. The Celtic warriors who were fighting all over that region brought back to central Europe anything they could pick up, including seeds of these wild plants.

Although the climates of central Europe were hostile to the subtropical plants they brought back, some of these leafy plants did grow—probably the collards, for they are known to us to be best after a good frost. The Germans and the English learned to take care of the plants in their climate, and when they learned hybridizing they are the ones who worked on the cabbage until they developed the capitata varieties. They had called these plants coles and when they learned to shred the fresh heads and mix with oil or sour cream, vinegar, and eggs, the mixture became coleslaw, so popular today with the quick-serve restaurants that dish out hamburgers, French-fries, and a scoop of coleslaw, almost a staple with the young and free! That it happens to be a balanced meal is only incidental and lucky for the uninhibited.

The closest cabbage has come to making it in high class restaurants is through the Dinty Moore comic strip. Dinty was always eating corned beef and cabbage before fashionable restaurants began serving it for business men's lunches, so it has the connotation of being "he-man" food. Corned beef was often cooked with sauerkraut in Europe's cold countries. The Europeans could not keep cabbage during the winter, so they put it down in stoneware crocks, layered in salt, and called it sauerkraut. One may even preserve fresh cabbage by pulling up the plant, hanging it root up in a dark cellar where it will keep all winter. No wonder cabbage was so popular in the cold, northern countries of Europe.

Overcooking cabbage until it is a reddish-yellow and smells to high heaven may have done more to bring cabbage to its low status than anything else. Old-time southern cooks cut sections into an iron pot, put in slices of salted "sow-belly" and let it simmer over the fire for hours, sending a foul odor throughout the house, but the "pot likker" was relished by many for soaking up a hunk of cornbread.

Learning that cabbage is best when cooked just until tender seems to have come later. In my high school days I lived with my math teacher who had as a cook Aunt Melinda who had a way with cabbage, as well as many other things. She cut a head of cabbage in eighths, steamed it until just barely tender, put the sections on a platter and poured over it a sweet-sour sauce that made a real gourmet dish either hot or cold. I asked her how she made the sauce and got the laconic answer, "I jes' puts it together," and that was it. I know there was butter, eggs, vinegar, and maybe a little sugar, but it was certainly complementary to cabbage. A section of the cold cabbage next day with a meat sandwich made an ample lunch.

In my estimation the *Brassica capitata* that has red leaves is better to look at than to eat. Even when young, the ribs are still tough, but a few threads in a salad are decorative. Cooking it does not improve the toughness and the murky purple is not even appetizing to look at. However, many do not share my opinion of red cabbage.

The succulence of young cabbages makes them appetizing to bugs, worms, and insects. Spraying with poisons should not be permitted. My aunt always poured the wash water (she used home-made lye soap) around the cabbages. I have sprayed with ordinary kitchen detergents. I have even poured the dish water around them. But some close and careful hand picking is one of the best ways to get rid of cutworms and fuzzy green worms.

Because cabbage have both deep roots and wide spreading ones, they need a loose soil and plenty of water. I always get the best results from early varieties. They head more quickly and seem hardier.

Since cabbages are high in minerals and vitamins but low in calories, one can stuff oneself on a bowl of shredded cabbage; however, they lend themselves to rich dressings, so beware! With sour cream or mayonnaise, or cooked with fat cured meats like ham bones, bacon, or "fat back" to make delectable dishes, the calories can roll up.

But forget that. Take a crisp head right from the garden, chill it in ice water, slice it thin and put it on the cocktail table with a cheesy or a sour cream mixture and watch your guests call for more. Make it all the rage! □

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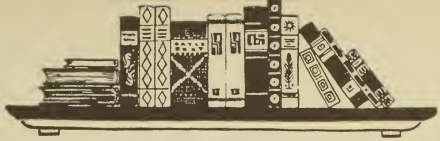


THE BOOK SHELF

GARLIC AT A GLANCE by Terry Tucker Francis. Thornwood Books, 1980, 22 pages, $1.00 (Available from: Thornwood Books, 1680 South Main St., Springville, UT 84663.)

Garlic at a Glance by San Diego writer Terry Tucker Francis is a pamphlet filled with the pungent tradition and lore that lends such popular appeal to garlic, king of the garden and kitchen. From ancient beliefs in garlic as a sacred food and a "slayer of monsters" to modern medical research into the aromatic bulb's chemical secrets, Mrs. Francis' booklet gives the topic of garlic a good-natured going over.

There are time-honored garlic home remedies from days gone by. There is practical how-to advice on how to grow, use and store fresh garlic. There's a compendium of intriguing garlic folklore and superstition from the world over. And readers who are really hooked on garlic will find lots to do in the "Learn More" chapter which, among other things, tells you how to join the World's Garlic Society, colorfully named the "Lovers of the Stinking Rose"! *Garlic at a Glance* is a good little read for garlic-lovers, who are sure to get their money's worth from this gathering of garlicky fact and fancy. □

Reviewed by *Allethe Macdonald*

ROSES, A POPULAR GUIDE by Mark Mattock. Blandford Press, Poole, Dorset, 1980, 176 pages, $12.50 (For sale by Sterling Publishing Co.)

When it comes to books about flowers, our British cousins certainly set a high standard, as this book testifies. With 88 magnificent full page color photographs of miniatures, creepers, hybrid teas, floribundas, shrub roses and climbers as well as brief description, it provides a full testimonial to a flower that has enchanted man since the dawn of history and no where more than in England. The author, a widely known rose grower and hybridizer, also gives advice on caring for roses as well as lists of hybridizers and rose federations around the world. □

Reviewed by *Russell MacFall*

THE COMPLETE BOOK OF HERBS AND HERB GROWING by Roy Genders. Sterling Publishing Company, New York, 1980, 176 pages, paperback, $8. 95

You can smoke and snuff herbs, gargle and eat them, treat coughs and wash your feet with them, among a multitude of uses that author Genders indorses for the more than 100 herbs he lists. The book, delightfully written and illustrated with drawings and color plates, was first published in England, where herb gardening appears to have long been a flourishing avocation as well as industry. □

Reviewed by *Russell MacFall*

IVIES by Peter Q. Rose. Blandford Press, Poole, Dorset, 1980, 180 pages, $17.50 (For sale by Sterling Publishing Co.)

According to author Rose, this is the first comprehensive book about ivies in more than a century and badly needed because of the confusion about species that has developed in that time. His treatment of the subject includes ivies for house, garden and landscaping, advice about cultivation, and a long section on species and varieties, some one hundred or more. Sixteen pages of illustrations illustrate many of them. The author is a national plant health inspector. □

Reviewed by *Russell MacFall*

CACTI AND SUCCULENTS FOR THE AMATEUR by Charles Glass and Robert Foster. Blandford Press, Poole, Dorset, 1977, 80 pages, paperback

This book first appeared in 1976 from the Abbey Garden Press in California and comes from the typewriters of the editors of the American Cacti and Succulent Society Journal of Arcadia, California, both growers and collectors as well. With more than 150 photographs of typical specimens and terse advice about the faults, problems and joys of each variety, it appears to be as practical a manual on a thorny subject as is now in print. The pun is not unintentional. □

Reviewed by *Russell MacFall*

PROPAGATION BY BUDDING OR GRAFTING

by *George James*

THERE ARE TWO words one should be familiar with in order to understand budding and grafting. The word STOCK is used to designate the plant into which the bud or graft is implanted. SCION is the word used for the piece that is inserted in the stock. There are some limits to the kinds of plants which can be budded or grafted—only those that are closely related botanically can be used. Apples can be budded to apples or pears, or one kind of citrus to any other kind, but apples cannot be budded to citrus.

Grafting and budding can only be practiced on plants that have a continuous layer of cambium surrounding their branches, twigs, and roots. (There are some plants that have their cambium only at certain points.) When the cambium of the bud or graft comes in contact with the cambium of the stock the two grow together in a short time, but if this does not happen the scion dies.

A shoot or shoots will grow from the scion at the proper time and this can be allowed to replace the original top so that the established roots of the stock support a new and more desirable plant. In this manner one takes advantage of the strenth or age or some other preferable quality of the stock and adds to it a top that is more useful in some way than the original. A bud or graft can be regulated by pruning after it has started to grow on the stock, so that it becomes only a part of the top, or it can become the entire top. A bud or graft will take on the age of the plant it is implanted in, so it will start to bear within a year or so.

Scions of different kinds can be used so there will be several kinds of fruit or colors of flowers on the same plant. When several kinds are used on one stock, one is usually more vigorous than the others and must be watched to see that it does not overgrow them. Sometimes commercial nurseries offer tree roses that will bear blooms of different colors, or deciduous and citrus fruit trees that have more than one variety on them. These must also be watched to see that the stronger does not crowd out the weaker.

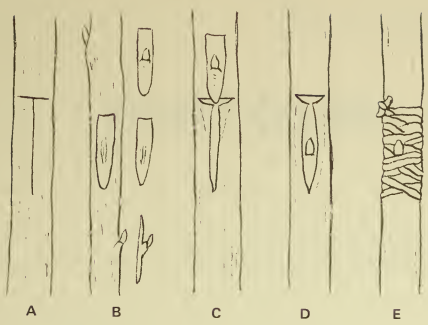
An amateur may want to create trees of his own that will have more varieties of flowers or fruit than a limited space would support otherwise. Several varieties of one fruit might be grafted to one stock to provide a sequence of ripening—early, midseason, and late. Where a pollinator is needed, as in plums and almonds, the two varieties needed to produce a crop can be grown on one stock. Avocados and some other fruits grow easily from seed, but the fruit bearing habits of such seedlings are not always to be counted on. These seedlings can be converted to trees of dependable habit by budding or grafting with scions from a plant with a history of good production of desirable fruit. Scions can be taken from plants of neighbors and friends and sometimes a nurseryman may be willing to give or sell a budstick from his stock of plants. If budsticks are to be kept any length of time before being used they should be moistened and kept in a closed plastic bag.

• BUDDING

In budding only one bud is used as a scion, while in grafting the scion has more than one bud. In budding, a "shield" or "patch" is implanted in the stock.

This kind of budding is so called because the slit into which the bud will be inserted is shaped like a "T" or because the bud, when cut, is shield-shaped. Budding can be done only when the cambium of a

SHIELD or T, BUDDING



A—Making cross cut at the top of the vertical slit.
B—Budstick with some buds cut off. Cut should be started below the bud.
C—Bud partially inserted in slit.
D—Bud in place.
E—Bud wrapped with rubber band.

plant is active, which is during the warm months of the year.

Before a bud is cut an exploratory cut should be made in the stem of the stock that is to be budded. Choose a clear place in the bark—one without damage or blemishes and between two nodes or joints, then make a vertical cut several inches long and a cut across the top of this, at right angles (Fig. A). If the bark at the point where the two cuts intersect can be lifted easily with the point of the knife, the cambium is active and budding can proceed. If the bark can not be lifted, stimulate growth with water and fertilizer and bud later.

Select a well developed and dormant bud which will be found on the interior of shrubs and trees. Buds lower down on the stem are better developed than those at the top. A twig or branch with well developed buds is cut—this is called a budstick. If there are leaves on it they should be cut off, leaving a little portion of the leaf stem or petiole, which can be used to handle the cut bud, since the cut surface should not be allowed to touch one's skin.

A bud is then cut from the budstick, using a very sharp knife (Fig. B). It is important to have a stone handy so that the knife can be sharpened after a few cuts. Start the cut below the bud and cut upwards, cutting deep enough to take a thin strip of wood. Sever the bud with a cut across the top and slip it under the raised bark at the top of the cut. Use the piece of petiole to hold the bud and push it down beneath the bark of the stock until the bud is completely covered (Fig. C). The point of the knife may be used to push with. The bud cut from the budstick should be placed in the slit within a matter of seconds after being cut. If the cambium is properly active the bud will slip into place easily (Fig. D).

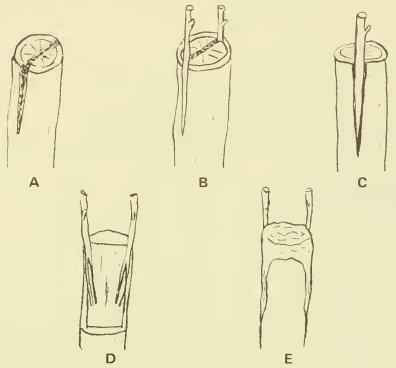
Wrap the inserted bud with a strip made by cutting a wide rubber band (Fig. E). Start below the bud and wrap upward, putting tension on the band so the bud will be held tightly in place. Overlap the wraps, but leave the tip of the bud exposed so it will be able to sprout. Secure the strip by passing a wrap over the bottom end and tucking the top end under the top wrap. The rubber will expand as the bud grows and will in time deteriorate and fall off.

The bud must unite the stock in a short time; if it starts to shrivel one will know that it has not taken and it can be replaced with another bud in a new slit nearby. Buds may not start to grow until the following spring, but they will remain firm and full until growth starts. When this occurs, surrounding branches should be trimmed so the new shoot will have room to grow and this trimming repeated as needed to give the new shoot room for proper development. If the entire top of the stock is to be replaced by growth from the bud it is best to remove the old top a piece at a time so that the bud is able to adjust to the sap flow.

• PATCH BUDDING

Patch budding is used on plants having a bark so thick it is difficult to work with. A patch of bark, usually about an inch square, is removed from the stock and a bud is cut with a patch that will fit into this opening, set in, and bound into place with the rubber strip. It is given the same care as the T or shield bud. A tool for making these cuts can be made by fastening two razor blades to a strip of wood about an inch wide. The wood should be grooved out on the bottom side so that it will not damage the bud. Two cuts on the budstick and two cuts on the stock with such a tool will cut both the bud and the place to implant it and the fit will be perfect—a fit difficult to achieve with a conventional knife.

CLEFT GRAFTING



• GRAFTING

Grafting differs from budding in that the scion has more than one bud and in many cases both the stock and the scion are dormant, while in others only the scion is dormant. Several styles of grafting will be described and the conditions under which they are the best to use will be indicated. Depending on the size of the stock, it is possible to insert more than one scion in a graft. Grafting is used on older plants whose bark is too thick to bud, on large plants where the use of more than one scion would be an advantage, or where there is a tremendous difference between the size of the stock and the scion.

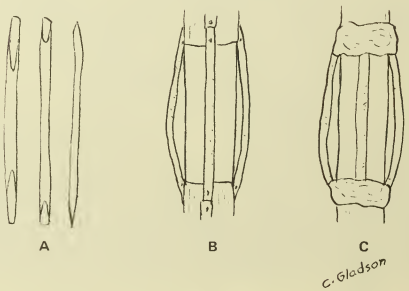
• BARK GRAFT

The bark graft can be used on both deciduous and evergreen plants and can be done whenever the cambium of the stock is active so the bark will slip. A branch of the stock is cut off at right angles to its line of growth and a vertical cut is made from the top of the cut stock several inches downward. A scion with several buds on it is shaped by slicing off one side so that its cambium is exposed and it is tapered so the scion is only half as thick at the bottom as at the top. The scion is slipped under the bark where the cut was made and pushed down until all its exposed cambium is in contact with the stock. The scion is fastened in place with a small nail and the edges of the bark held down in the same manner. All exposed areas, including the cut tip of the scion, are then sealed with pruning compound. Several scions could be placed on large branches. If there is danger of any graft dehydrating it may be covered with a paper (not plastic) bag. Rub off any shoots that grow from the stock below where the graft was made.

• CLEFT GRAFT

This kind of graft is used only on dormant plants and is used where the variety of a whole tree is to be changed, or a large branch changed to another variety. The scion is dormant as well as the stock, and the branch or branches are cut off at right angles to their direction of growth (Fig. A). The branch is split and the split kept open with a wedge. Two scions are prepared by trimming off both sides so that the scion is thin at the bottom. These are inserted in the split (Fig. B) and set at a slight angle so that their cambium is sure to cross that of the stock (Fig. C & D). When the wedge is removed the tension will hold the scions in place. Seal all exposed areas with pruning compound (Fig. E), cover with a paper bag if needed, and brush sprouts off the stock as they appear.

BRIDGE GRAFTING



• BRIDGE GRAFT

Bridge graft or inarching is a form of grafting used to repair trunks of badly damaged trees, damage that would impair the flow of nutrients from the soil to the top and from the top to the soil. Scions that are long enough to extend several inches beyond the wound are cut from an undamaged plant (Fig. A). The wound is cleaned and trimmed so its edges will heal quickly and the ends of the scions are cut at a slant so they have a large part of their cut ends touching the cambium of the trunk. These can be held in place with small nails if need be (Fig. B), and all cut and exposed areas, including the wound, sealed with pruning compound (Fig. C). This graft is done at any time it is needed.

SUMMARY

Successful buds and grafts will occur when a very sharp knife is used and when it is kept sharp by frequent honings. In all buds and some grafts the cambium must be active; in other grafts both stock and scion must be dormant. Plants must be compatible, usually closely related botanically, but even here there are some varieties that make poor scions or will not unite with what appear to be close relatives.

Take care of the budstick from the time it is cut until the bud is inserted so that it does not dry out, and handle the cut bud or graft scion so its exposed cambium is not damaged before it is in place. Promptly close all cuts and slits by binding or sealing. It is important to think carefully before removing the top growth of the stock in the case of budding, so that the sprout from the scion has room to grow without competition, yet is not overwhelmed by the increase of sap flow which can occur when the removal of the stock top is too sudden. It will take practice to become proficient in these techniques, but once understood there will be enjoyment as well as material gains from them. □

Illustrations by *CAROL GLADSON*

Foxgloves are also called foxbells or fairy caps. The scientific name *Digitalis* comes from the Scandinavian and means finger hat or thimble. Digitalis, used in the treatment of heart conditions, is obtained from the dried leaves. Early in the 18th century the leaves were used externally to heal sprains and bruises.

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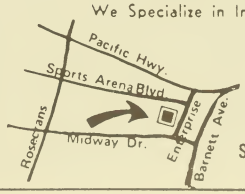

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THE EXOTIC LEAVED MARANTAS

by *Sharon Siegan*

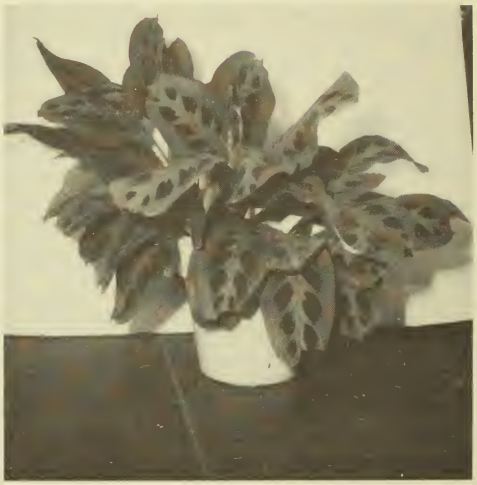
SO YOU'RE LOOKING for a house plant with pizzazz—one that will attract attention and keep it? Maranta is the answer. There are some 30 species of maranta, but most are not carried by local nurseries. Readily available are the *Maranta leuconeura* cultivars, commonly known as prayer plants.

Prayer plants are so named for their curious habit of slowly folding their leaves upward after sunset. When morning comes they relax and open out again to catch the sun's rays. If by chance your plant does not perform this ritual, it is not for lack of piety; it is simply improper light. Place it near a north window and the daily devotions should be resumed.

Actually, *M. leuconeura* prefers filtered light. Its folding mechanism probably developed as a protective device while growing low (height is about 8 to 10 inches) in the swampy areas of a Brazilian forest. Since they were not photosynthesizing at night, they need not remain open and the relatively large leaves would be less exposed to trampling or other damage in an upright position.

M. leuconeura is also known as "rabbit tracks." This descriptive name refers to the distinctive brown markings paired across the midrib of each leaf. With age, the tracks become dark green prints against the lighter leaf color.

Although *M. leuconeura* is available as species, its more colorful clones or horticultural varieties are the popularly stocked plants. *M. l.* 'Kerchoviana' exhibits the same rabbit track upper surface, but its underside of silvery gray with red spots casts a soft glow to the translucent leaf. Even more striking is *M. l.* 'Massangeana' with its red veining creating a herringbone pattern superimposed on the pink-splashed leaf surface. The purplish underside adds richness and drama. *M. l.* 'Erythroneura' is another red-veined prayer plant—boldly designed with a jagged silver center invading the olive green leaf top.



Prayer Plant (*Maranta leuconeura*)

Boasting such brilliant foliage, the marantas would not be expected to provide showy flowers—nor do they. Mature plants will bloom in spring and summer, sending up inconspicuous terminal spikes of small white flowers.

Marantas are not easy to cultivate. They are salt-sensitive and acid-loving, a difficult combination with San Diego's hard, alkaline water. One solution is distilled water. Another is flushing out the salt accumulations with periodic deep soakings. Browning of the leaf tips will alert you to the need for this. Regardless, marantas require a very acid soil—thriving

on a pH of 4.5! Since 7 is neutral, and our soil tends to be above that, regular feeding with a fertilizer (preferably fish base) is important. Plants should be fed every two weeks, using half-strength recommended dilution.

Not surprisingly, marantas enjoy high humidity and root moisture. While few homes can readily provide the 70-90 percent humidity (particularly for *M. l.* 'Massangeana') which these plants prefer, terrariums will. And terrariums will also concentrate the sun's warmth, up to the 90° in which marantas like to bask. Although heat loving, they will accept nighttime lows of mid-40s.

Marantas are most attractive in dish gardens. Be sure the soil is light and drainage good. Then add companions such as *Nicodemia diversifolia* (indoor oak), any of the peperomias (ripple, watermelon, variegated), pilea (artillery or aluminum plant) and such ferns as polypodium, pteris and asplenium. Their cultural needs are similar to the marantas', and their foliage is equally fascinating in pattern or form.

One noteworthy maranta species is *M. arundinacea*—the arrowroot. This is the plant from whose tubers a starch is obtained.

Closely related to maranta are calathea and ctenanthe, other members of Marantaceae. For the most part their foliage is equally exotic, and for certain species, the cultural conditions are equally demanding or more so. Almost all are excellent candidates for terrariums and dish gardens (although the latter might do better under greenhouse conditions). Fortunately, some of the prized specimens are better adapted to prevailing home conditions. One such is *Calathea makoyana*, aptly known as the peacock plant. Its green markings on the leaf top are repeated in purplish red below, with both colors shimmering through the translucent surface. Another species which is quite tolerant of low humidity is *Ctenanthe* 'Burle Marx' or purple tiger. Its leaves are two-toned green above, reversed in maroon below. *C. lubbersiana* has no colorful jungle common name, but the irregularly mottled leaves, banded in cream, chartreuse and dark green make it an exotic standout. *C. lubbersiana* prefers more light than its relatives, and grows taller, rapidly achieving 3 feet in height.

For those who enjoy a cultural challenge, some spectacular calathea species are: *C. roseo-picta* (sporting tones of magenta-pink and mint green); *C. insignis*—the rattlesnake plant, for its colorful, long, wavy-margined leaves; *C. zebrina* (velvety green with yellow midribs); and *C. aemula* (shiny top, finely haired below). A ctenanthe dazzler, is *C. oppenheimiana* 'Tricolor' in which each leaf is patterned differently in silver and green with maroon underlay. Because these plants are difficult to propagate and slow growing, they tend to be expensive. □

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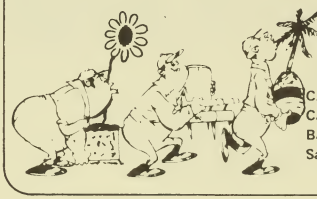
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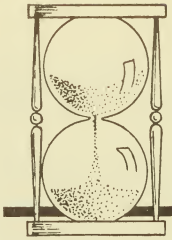
A cultural calendar of care from our affiliates–

compiled by *Penny Bunker*



NOW IS THE TIME

BEGONIAS MARGARET LEE

Now is the time–

- to remove dead leaves from plants.
- to make sure plants do not become too dry.
- to move plants to a more favorable location if they have been under a "down drip".
- to spray for mildew, to control slugs and snails, and spray for mealybugs and loopers.
- to start cutting back lightly on cane and shrub types toward the last part of this period.
- to start tuberous begonias for bloom later in the year.

BONSAI DR. HERBERT MARKOWITZ

Now is the time–

- to reduce watering; slower growth requires less water, but do not let them dry out.
- to refrain from fertilizing your trees.
- to use a dormant spray such as copper oil or lime/sulphur mixture particularly on maples, quince, and other deciduous trees after they have been pruned.
- to prune fruit-bearing bonsai.
- to protect plants from too much moisture if a rainy period.
- to watch for aphids and other sucking insects and spray accordingly.
- to keep deciduous trees in shade if there is warm weather in February, or they will start budding and sprouting.

BROMELIADS THELMA O'REILLY

Now is the time–

- to protect your plants from cold–cover with newspaper at night.
- to be sure water does not freeze in cups in frost areas.
- to wait to fertilize until weather is warmer–late Feb.
- to check cups and between the leaves for slugs.
- to give the colorful leaved plants more exposure to winter sun.
- to give added protection to soft, tender-leaved varieties.

CACTI & SUCCULENTS VERNA PASEK

Now is the time–

- to watch for blooming cacti and succulents. Mammiliarias and neoporterias in pots may be brought inside to enjoy. Place in well-lighted location, out of drafts and not too warm.
- to watch for insects–use malathion to control most pests.
- to protect tender cacti and succulents from frost.
- to protect from too much water; keep on dry side in cool temperature areas.
- to withhold fertilizers; plants need rest at this time of year.

CAMELLIAS BENJAMIN BERRY

Now is the time–

- to maintain a regular spraying program. Dust with chlordane under and around plants to discourage leaf beetles.
- to maintain a regular watering program unless sufficient rains have fallen–they like moist soil but not wet.
- to pick up all fallen blooms to avoid any infestation of sclerotinia (petal blight).
- to make grafts.
- to transplant camellias. Remember not to fertilize a newly transplanted bush, but water well and often with a vitamin B-1 solution.
- to continue feeding 2-10-10 or 0-10-10 fertilizer to established plants.
- to renew mulch where necessary, using either fir bark or pine needles.
- to select plants from nurseries while in bloom.
- to feed iron every other month to promote a healthy deep green.

DAHLIAS ABE JANZEN

Now is the time—

- to dig any tubers left in the ground. By early January, the tops should be completely withered. Cut tops just above the ground.
- to store tubers without dividing—use vermiculite or sand, leaving any soil that clings to them. Keep in a cool area.
- to inspect those tubers stored earlier for signs of shriveling; if too dry, add a little moisture.
- to start in February to prepare the garden plot. Turn the soil, add humus and fumigate. Dig in humus, equal parts of superphosphate and sulphate of potash—turn well. Add fertilizer two or three weeks before planting.
- to start in February some selected roots to send out sprouts which will make good cuttings. Apply some bottom heat to encourage sprouting.

EPIPHYLLUMS FRANK GRANATOWSKI

Now is the time—

- to feed mature plants with 0-10-10 fertilizer to promote blooming in spring. Either liquid or slow release granules can be utilized. If the liquid is used, another application may be necessary in about 30 days.
- to prune out dead and unsightly growth, allowing more energy to be used by newer and healthier branches.
- to maintain preventative pest control, by keeping plants free of debris and extraneous materials. Spray with insecticides only if necessary. Avoid sprays with oil base, especially if buds have begun to form.
- to protect from unexpected frost and strong wintry winds.
- to bait for snails and slugs.
- to take advantage of beneficial rains. If plants are potted in proper porous soil even heavy rains will have no harmful effect.

FERNS RAY SODOMKA

Now is the time—

- to fertilize platyceriums (staghorns)—give bone meal, hoof and horn, or a high nitrogen liquid.
- to control aphids.
- to keep after slugs, snails, pill-bugs, etc.; winter does not stop them.
- to water gently, but do not soak during the hot days. Cool nights keep their feet too cold. Don't rely on rains—check any hidden or covered plants to see they get water—rains may not reach them.
- to take "pups" from platyceriums and mount.
- to replant spore.
- to trim off dead fronds and keep surrounding areas clean—can use dead material for compost.

FUCHSIAS WILLIAM SELBY

Now is the time—

- to prune, if you haven't already, after the last frost danger. Prune when the soil is moist and leaves turgid (leaves and stems are full of water).
- to prune heavily, leaving strong stems about ½ inch ahead of a node. Remove all weak, thin branches. Plant in baskets should be cut back to edge of basket and trimmed to within 4 inches of soil on top.
- to shape other plants according to variety.
- to take cuttings from good end clippings; takes a little longer to root in cool weather.
- to spray remaining foliage and the ground to eliminate pests that might winter over.
- to apply a good 10-5-5 fish-type fertilizer after pruning.

GERANIUMS CAROL ROLLER

Now is the time—

- to water only when plants have become fairly dry. Each watering should be a thorough one in which the excess water runs out the drainage holes.
- to continue feeding a balanced fertilizer dissolved in water every 4th to 6th watering, using the fertilizer at half the recommended strength.
- to prune plants which have not been cut back. Leave some green leaves on every stem being cut back. Prune again in 4 to 6 weeks to bring lanky plants into shape.
- to make cuttings from the prunings. Shelter the cuttings from extreme weather conditions.
- to tip pinch plants which were pruned in the fall.
- to continue pest and disease control, using products according to the manufacturers' directions.
- to give temperary shelter from freezing if temperatures go below 28° F.
- to give plants the best light available and rotate pots for symmetrical growth.

GESNERIADS MIKE LUDWIG

Now is the time—

- to send for catalogues for spring ordering; order supplies to have on hand when you need them.
- to wash pots in a bleach solution to kill unwanted pests. This way, you'll be ready when repotting time arrives.
- to spray for pests and disease—there will be little to no damage to plants which are more dormant in winter. Check for pests and help avoid problems that might occur in the spring.
- to not water on cold, cloudy days or in late afternoon—to prevent many problems.
- to start achimenes rhizomes now. Place them on a damp bed of vermiculite in a shoe box; watch the new growth for mold. In 15 days or thereafter, there

should be signs of new growth, if temperatures are warm enough. Plant them in a loose mix, placing rhizomes just under the surface, keep barely moist until growth appears above the soil.
- to repot streptocarpus. Remove last years flowering leaves and clean up plant; repot in order to have a better plant.
- to check tubers to be sure they are not too dry, or have started to grow. Treat accordingly.
- to start cuttings to give additional plants for sale or gifts.

HEMEROCALLIS SANFORD ROBERTS

Now is the time—
- to water plants only when soil is dry.
- to clean up clumps—remove dead bloomstalks and foliage from base of clumps to combat aphids that might winter over.
- to prepare areas for spring plantings. Spade deeply and incorporate peat moss and organic compost. Mix thoroughly.
- to plant seed in a good planting mix after they have been refrigerated 45 days or more to induce dormancy.
- to wait until February or a little later to divide.

IRIS SAN DIEGO-IMPERIAL COUNTIES IRIS SOCIETY

Now is the time—
- to continue watering your tall bearded if rains are light.
- to maintain a regular spray program with copper oil to help control rust.
- to make last plantings of bulbous iris for spring blooms.
- to start in February to feed all iris with a 0-10-10 liquid fertilizer—following directions carefully. Do not over-fertilize.
- to control slugs and snails.
- to keep old brown fans pulled from tall-bearded; good ground cleaning and spraying is helpful in pest control.

ORCHIDS CHARLIE FOUQUETTE

Now is the time—
- to remember position of sun is in the south, but there are days when it still can burn plants.
- to check for moisture in pots of phals and cattleyas; don't be fooled by gray days.
- to give dendrobium nobile hybrids cool nights to encourage bud initiation, but do not let freeze. 40° is sufficient for 3 to 4 weeks. Give just enough water to keep damp.
- to be aware of any sudden temperature drops in the outlying areas.
- to check burners and valves for leaks, check wires to transformers, regulators, and thermostats.
- to check vent pipe on heater to see it is not clogged—bird nests and debris may have collected.
- to remove water from swamp cooler, change pads, clean lime deposits, paint with rust retardant paint, check fan-belt, motor, water-pump and reset thermostat. Remember to disconnect unit while working on it.
- to remember phals should be spiking; if they are moved, place in same general direction and area so flower will bloom in a uniform manner.
- to water early in the day so crowns will be dry by nightfall.
- to water the many orchids that do not have pseudo-bulbs for water storage.
- to protect your variegata oncidiums by shielding from rain and cold wind blasts.
- to remember that bud drop on phals and ascocentrum are often caused by change in air draught, temperatures, heaters, open doors, etc.
- to protect your plants with a shelter; remember heavy rains and hail damaged many flowers last year.

ROSES DEE THORSON

Now is the time—
- to plant bare root roses, mounding each bush with damp earth until new growth starts, to prevent dehydration.
- to finish all major pruning jobs, follow with a garden cleanup—a good dormant spraying of bushes and the surrounding areas.
- to root hard-wood rose cuttings and rootstock for budding this summer.
- to give newly established bushes liquid fertilizer six weeks after planting.
- to start preventative spraying in February for mildew and aphids—use ½ strength on new foliage.
- to add iron chelates after roots start growing (iron can only be absorbed by new roots).
- to supply adequate water when rose bushes are rapidly growing.
- to apply a chemical fertilizer if the ground stays cold and roses are lagging behind in growth.

VEGETABLES GEORGE JAMES

Now is the time—
- to set plants of broccoli, Brussels sprouts, cabbage, celery, cauliflower, chard, and collards any time the soil is dry enough to work.
- to start seeds indoors of spring vegetables that can be transplanted.
- to plant divisions of artichoke, roots of asparagus, and plants of fruiting berry vines as soon as possible and before the end of February.
- to read magazines and seed catalogs to become familiar with the new varieties of vegetables and to plan to try those that have the greatest appeal to you.

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